MAPS Detector Updates

Summary of MAPS plans for the September Tracking Review

(1) This week (7/20 - 8/6):

Finish pileup development (almost complete)

Canvas MAPS interest and resources with Google Form

Doodlepoll a 1st detector meeting for 3rd week of August

(2) Next week (8/7 - 8/13):

Push through the Project File homeworks

Initial informal agreements with CERN (Musa)

Run pileup tests

(3) Following week (8/14 - 8/20):

Draw up Defense presentations

Hold 1st Detector Meeting

Bottom-up Project File Estimates

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(4) Following week (8/21 - 8/27):

8/22 Internal LANL Cost and Schedule Review Presentations

(5) Following week (8/28 - 9/3):

8/30&31 sPHENIX Tracking Review Practice Presentations

(6) Following week (9/4 - 9/10):

9/7-9 BNL Tracking Review

Heavy Flavor TWG Report

Summary of our TWG plans for the September Tracking Review

many generalized tracking efforts ongoing
(see Tony's talk for details)

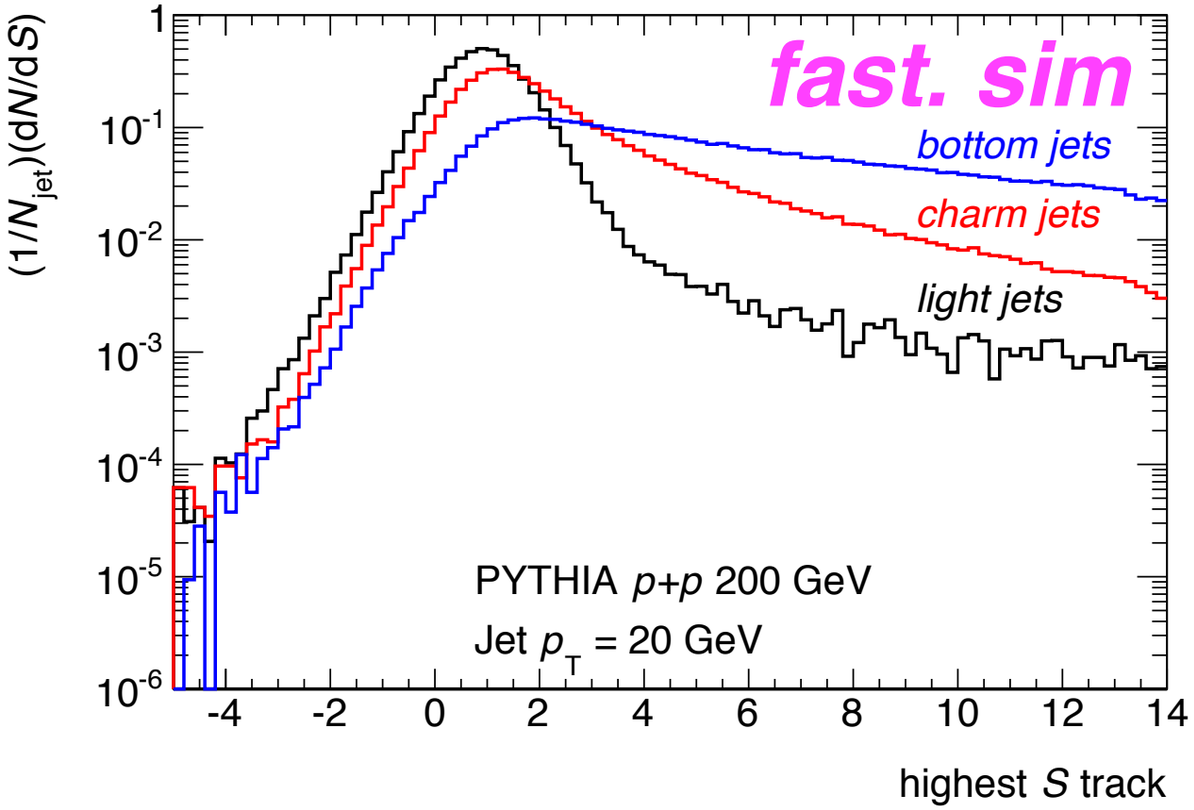
While I split time between general tracking and MAPS detector effort, Jin has been managing HF-specific efforts:

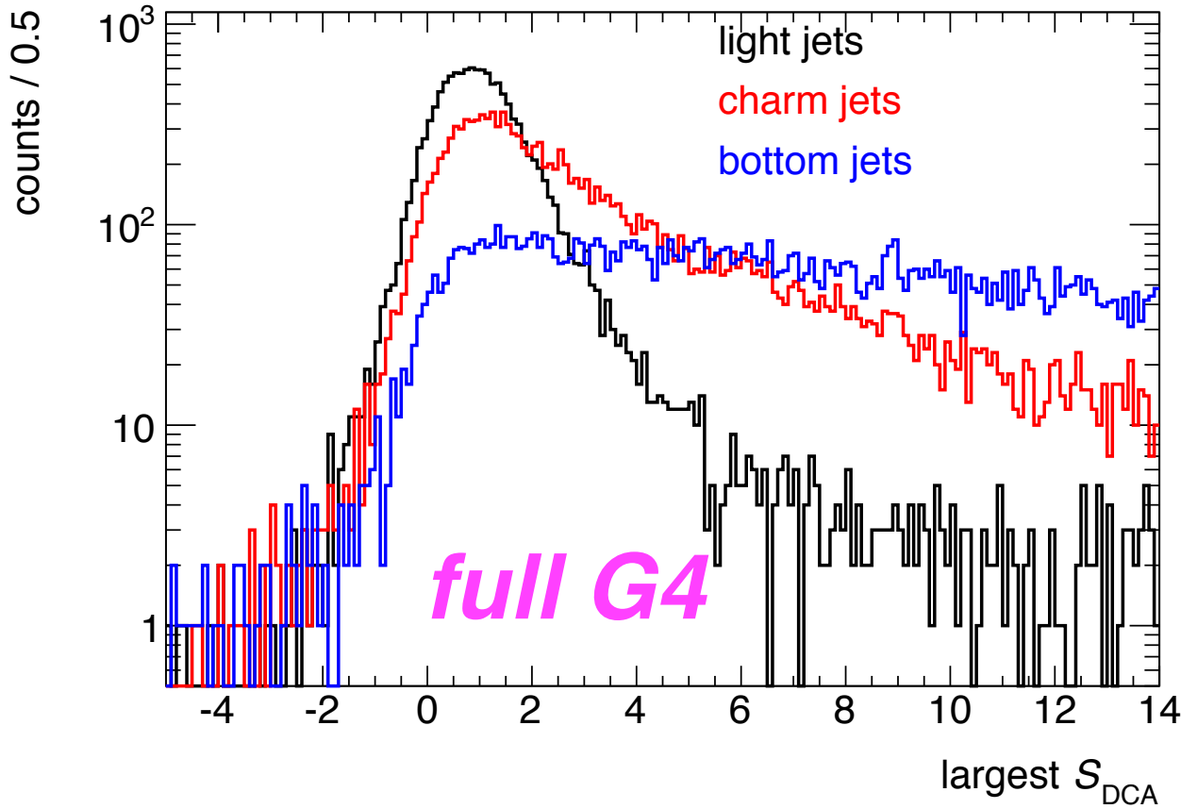
(1) Porting Track Counting Methods to GEANT4

(2) Developing Secondary Vertex Methods with RAVE

Porting Track-Counting

started by Dennis Perepelitsa (BNL), passed over now to Haiwang Yu (NMSU)
who just completed our standalone Kalman routine





~Nov. 2014 (Science Review)
fast simulation: parameterized DCA performance applied to truth-level charged hadrons

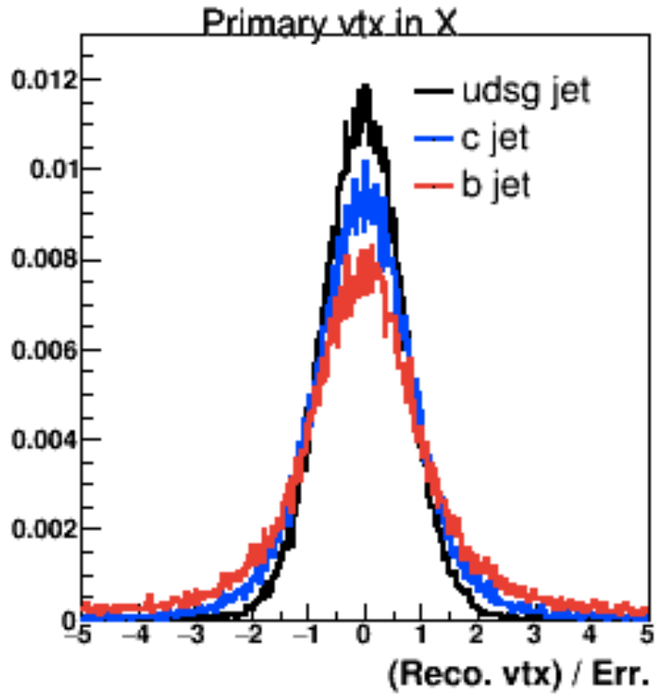
May 2016
G4 simulation: cutting on DCA of reconstructed tracks

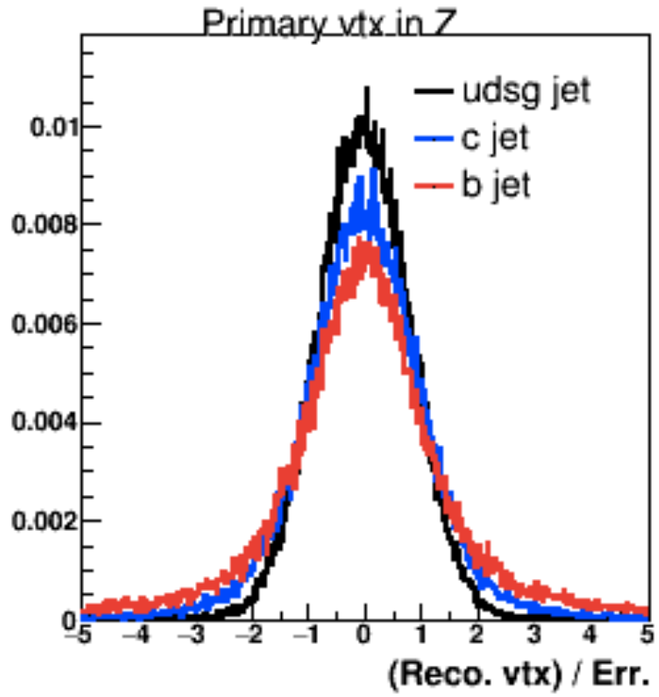
RAVE Vertexing

from Sanghoon Lim (LANL) report to the Simulations Meeting this week

- Updated procedure
  - Primary vertex finding
    →use all reconstructed SvtxTrack tracks in an event
    →vertex finding algorithm: adaptive method (single vertex mode)

  - Secondary vertex finding
    →search truth jet ($\Delta R=0.4$, $p_T>20$ GeV/c, $|\eta|<1.0$)
    →for a selected truth jet, put reconstructed SvtxTrack within $\Delta R<1.0$ into the vertex finder
    →obtain reconstructed vertices within a jet (adaptive method, multi vertex mode)
    *truth jet having at least 1 vertex is considered as a reco. jet candidate



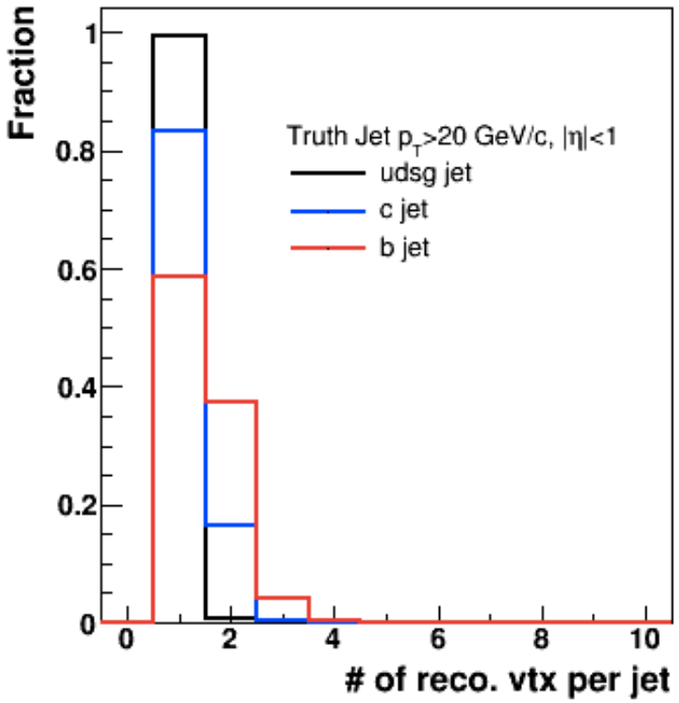


B-jets with Secondary Vertexing

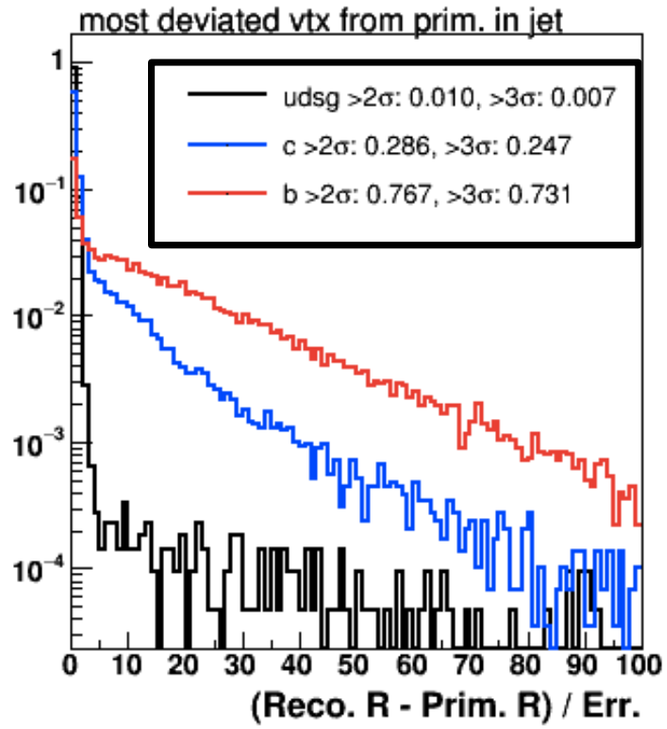
from Sanghoon Lim (LANL) report to the Simulations Meeting this week

- Calculate standard deviation of between most deviated vertex (from prim. vertex) in a jet and primary vertex

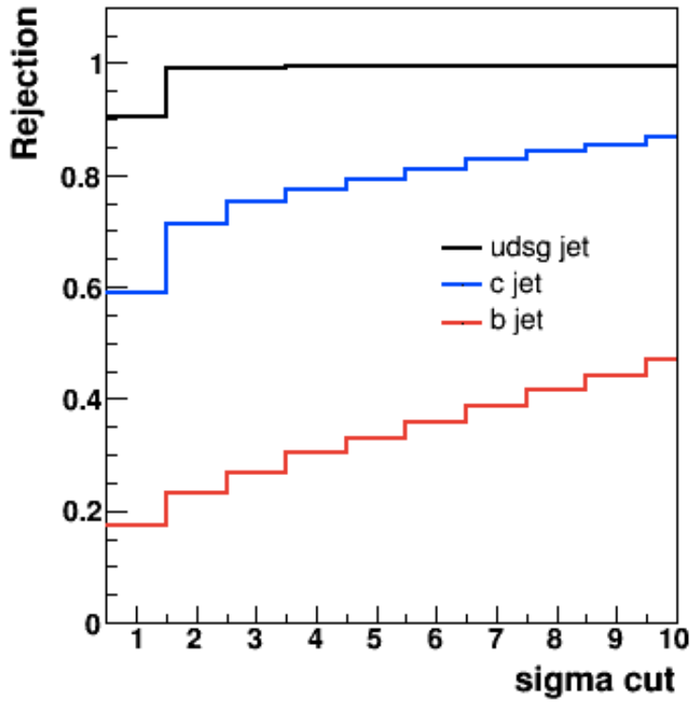
number of reco. vtx in a jet



standard deviation of most deviated vtx from prim. vtx



rejection w/ standard deviation cut



udsg jet: 1% (w/ 2 sigma cut), 0.7% (w/ 3 sigma cut)

c jet: 28.6% (w/ 2sigma cut), 24.7% (w/ 3 sigma cut)

b jet: 76.7% (w/ 2 sigma), 73.1% (w/ 3 sigma cut)